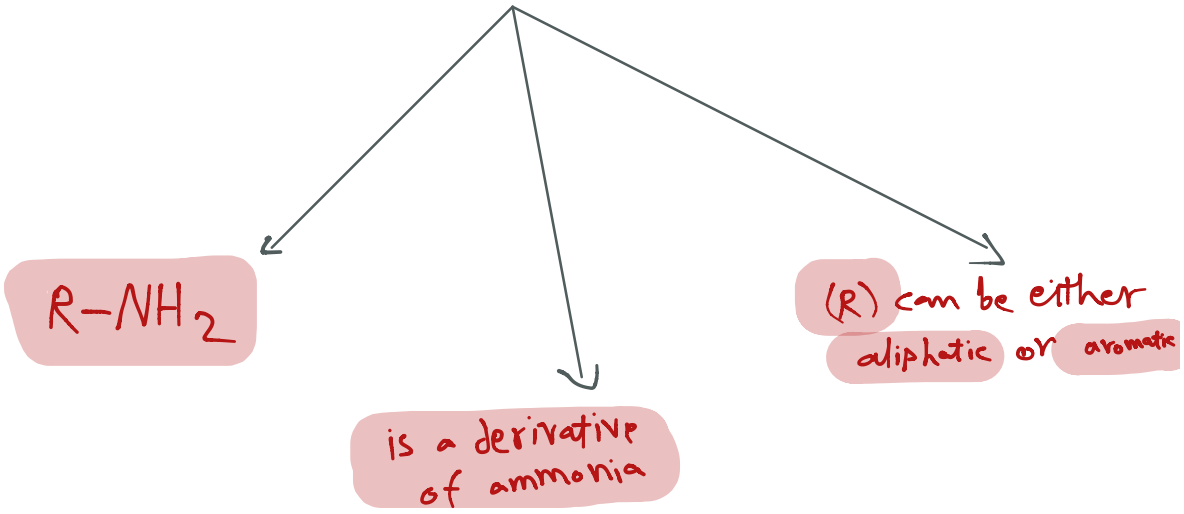
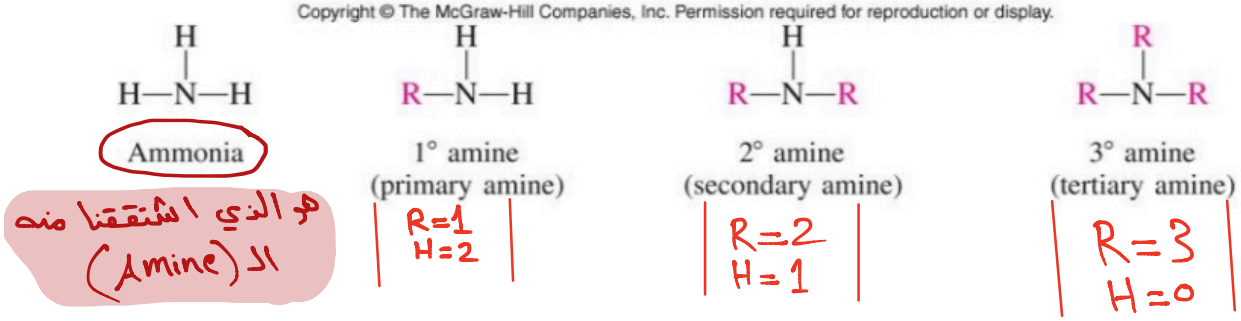
Amines (43-45)



Classification of Amines



Physical Properties

1- Amines form hydrogen bonds but not as strongly as alcohols.

2- Nitrogen is less electronegative than oxygen.

3- Tertiary amines cannot hydrogen bond to each other.

there is no hydrogen bond

4- lower M.W soluble in water.

Arrangement for high boiling point of organic:

carboxylic acids > alcohols > amines > esters > ketones > aldhydes > ethers > hydrocarbons (alkane > alkene > alkyne)

decrease →

High boilig point among amines (classification)

1° amine > 2° amine > 3° amine (without N-H)

decrease

Names of amines

IUPAC:

- longest chain of carbon containing with amine group.
- Naming a branch then the parent with suffix

R – anamine

* without space *

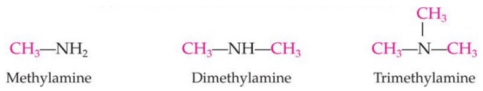
$CH_3 - \underset{\underset{H}{|}}{N} - CH_3$

N-methyl methanamine

common name:

- Alkylamine

* without space *



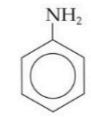
$CH_3 - \underset{\underset{NH_2}{|}}{CH} - CH_3$

Isopropylamine

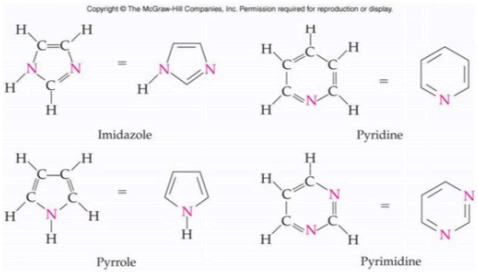
Aromatic & Heterocyclic Amines

- Heterocyclic amines are:
  - Cyclic compounds
  - Have at least one N in the ring
  - MANY are physiologically active and many are critical in biochemistry

Memorise.

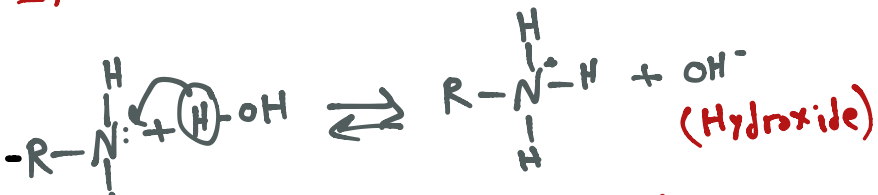


Aniline



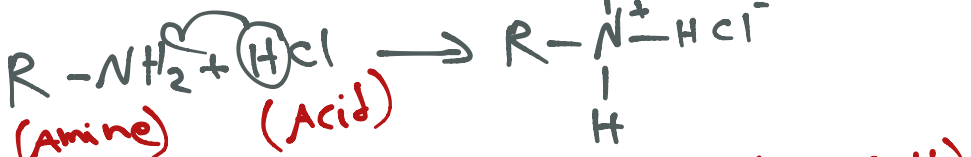
Amines as Bases

- Amines are weak bases.



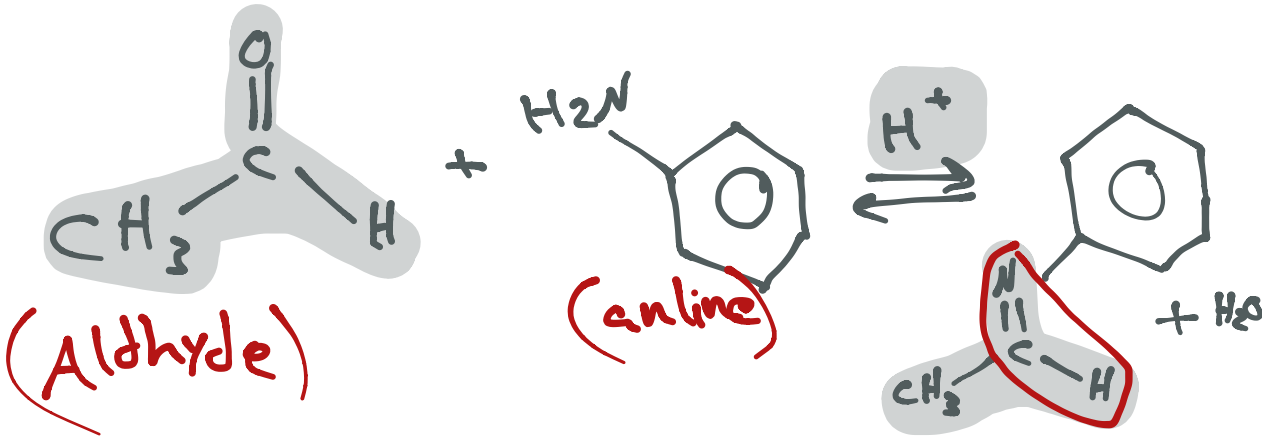
(amine) (water) (Alkylammonium) (Hydroxide)

Neutralization Reaction



(Amine) (Acid) (Alkylammonium Salt)

Addition of amines



Done by megeran